

Easy Deployment of High-Performance Data Analysis Platform

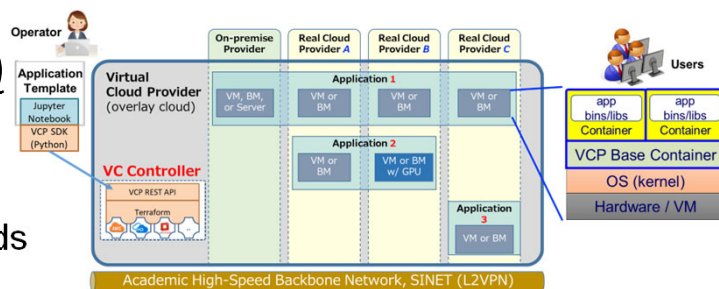
- OpenHPC, Open OnDemand -

Open OnDemand is now available, while conventional batch schedulers are still used. These trends make it harder to deploy a software platform for data analysis on an HPC cluster. We develop middleware to support the deployment of data analysis platforms, Virtual Cloud Provider (VCP). VCP configures an HPC cluster and deploys middleware required by applications, including GPU libraries, OpenHPC, and Open OnDemand, instead of HPC system administrators.

Virtual Cloud Provider (VCP)

Overview:

- ◆ VCP supports operate of research and educational applications with one or more clouds and on-premise systems connected by VPN.
- ◆ VC controller hides API differences between clouds.
- ◆ VCP user builds and operates applications by using “Application Template.”
 - ◆ Application Templates are written in the Jupyter Notebook format.



Released “Application Template”:

- ◆ LMS Template: Builds and maintains a Moodle-based Learning Management System(LMS).
- ◆ HPC Template: Supports construction of an HPC cluster using OpenHPC v1/v2.
- ◆ Open OnDemand Template: Builds and maintains Open OnDemand env.
- ◆ Hybrid Cloud Template: Deploys cloud instance and builds user applications on the instance when the user’s on-premise system runs out of resources.
- ◆ JupyterHub Template: Builds and maintains the Littlest JupyterHub env.

<https://github.com/nii-gakunin-cloud/ocs-templates> (in Japanese)

How to build Open OnDemand using VCP

1. Operator builds an OpenHPC-based HPC cluster following the HPC template:
 - ◆ Launch master and worker nodes in a cloud using VCP.
 - ◆ Install the Slurm job manager and HPC libraries.
2. Operator installs Open OnDemand (OOD) for the cluster following the OOD template:
 - ◆ Install OOD on the master node.
 - ◆ Set up OOD applications, e.g., Linpack and Jupyter.
3. Users can use HPC applications on the HPC cluster via OOD.

